

EVALUATION FINDINGS
FOR THE
NORTH CAROLINA NATIONAL ESTUARINE RESEARCH RESERVE
JUNE 2000 THROUGH DECEMBER 2004

September 2005

Office of Ocean and Coastal Resource Management
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I. INTRODUCTION

The Coastal Zone Management Act (CZMA) of 1972, as amended, established the National Estuarine Research Reserve System (NERRS), a network of reserves that are protected for long-term research, environmental monitoring, education, and coastal stewardship. Sections 312 and 315 of the CZMA require NOAA's Office of Ocean and Coastal Resource Management (OCRM) to conduct periodic performance reviews or evaluations of federally designated national estuarine research reserves (NERRs). This document describes the evaluation findings of the Director of NOAA's OCRM with respect to the operation and management of the North Carolina National Estuarine Research Reserve (NCNERR or Reserve) by the North Carolina Department of Environment and Natural Resources (DENR) during the period of June 2000 through December 2004. It contains a description of the review procedures, a description of the program, evaluation findings, major accomplishments during the review period, recommendations, a conclusion, and appendices.

The recommendations made by this evaluation appear in **bold** type and follow the section of the findings in which the facts relevant to the recommendation are discussed. The recommendations may be of two types:

Necessary Actions address programmatic requirements and must be carried out by the date(s) specified;

Program Suggestions describe actions that OCRM believes would improve the program, but which are not mandatory at this time. If no dates are indicated, the State is expected to have considered these Program Suggestions by the time of the next CZMA §312 evaluation.

Failure to address Necessary Actions may result in a future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c). Program Suggestions that must be reiterated in consecutive evaluations to address continuing problems may be elevated to Necessary Actions. NOAA will consider the findings in this evaluation document in making future financial award decisions relative to the North Carolina NERR.

It is the conclusion of this evaluation that the NCNERR has marginally implemented and enforced its federally approved program and adhered to its programmatic obligations defined by the terms of federal financial assistance awards and NERR System regulations under Section 315 of the CZMA during the period covered by this evaluation. However, OCRM is concerned about the effect of events and decisions on the Reserve during this evaluation time period and about whether the NCNERR will be able to continue to implement and enforce the federally approved program and adhere to programmatic obligations.

This document contains four (4) recommendations that take the form of Necessary Actions that are mandatory and must be completed by the identified deadline, and three (3) Program Suggestions that denote actions OCRM believes the State should take to improve the program, but which are not mandatory at this time.

II. REVIEW PROCEDURES

A. OVERVIEW

The Office of Ocean and Coastal Resource Management (OCRM) evaluation staff began its review of the North Carolina NERR in August 2004. The §312 evaluation process involves four distinct components:

- An initial document review and identification of specific issues of concern;
- A site visit to North Carolina, including interviews and public meetings;
- Development of draft evaluation findings; and
- Preparation of the final evaluation findings, partly based on comments from the state regarding the content and timetables of necessary actions specified in the draft document.

B. DOCUMENT REVIEW AND ISSUE DEVELOPMENT

The evaluation team reviewed a wide variety of documents prior to the site visit, including: 1) the NCNERR federally-approved Environmental Impact Statement, management plan, and program documents; 2) financial assistance awards, performance reports, and work products; 3) official correspondence between the program and OCRM; 4) the previous §312 evaluation findings; and 5) other relevant information.

Based on this review and on discussions with the OCRM Estuarine Reserves Division staff, the evaluation team identified the following priority issues:

- major accomplishments during the review period;
- status of reserve staffing and needs;
- facilities development and relocation;
- status of general administration of the reserve and management plan revisions;
- status of implementation of the reserve's research, monitoring, and education programs;
- the manner in which the reserve coordinates with other governmental and non-governmental organizations and programs in the state and region; and

- the reserve's progress in addressing the recommendations contained in the most recent Section 312 findings dated March 2001.

C. SITE VISIT TO NORTH CAROLINA

Notification of the scheduled evaluation was sent to the North Carolina Department of Environment and Natural Resources (DENR), the North Carolina NERR, relevant federal agencies, and the North Carolina congressional delegation. The North Carolina NERR published notification of the evaluation and scheduled public meetings. In addition, a notice of NOAA's "Intent to Evaluate" was published in the *Federal Register* on October 15, 2004.

The site visit to North Carolina was conducted from December 6-10, 2004. The evaluation team consisted of L. Christine McCay, Evaluation Team Leader, OCRM National Policy and Evaluation Division; Cory Riley and Susan White, Program Specialists, OCRM Estuarine Reserves Division; and David Ruple, Manager, Grand Bay (Mississippi) National Estuarine Research Reserve.

During the site visit, the evaluation team met with some former and all current NCNERR staff, senior DENR and Division of Coastal Management staff, other state officials, coastal researchers and academicians, local advisory committee members, civic group representatives, local government officials, and non-governmental organizations. Appendix A contains a listing of individuals contacted during this review.

As required by the CZMA, public meetings were held on Tuesday, December 7, 2004, at 7:00 p.m. at the Corolla Fire and Rescue Squad Station, Ocean Trail, Corolla, North Carolina; Wednesday, December 8, 2004, at 7:00 p.m. at the C-MAST Building, third floor Library Conference Room, 303 College Circle, Morehead City, North Carolina; and Thursday, December 9, 2004, at 7:00 p.m. at the North Carolina Department of Environment and Natural Resources Regional Office, Room 200, 127 Cardinal Drive Ext., Wilmington, North Carolina. Members of the general public were given the opportunity to express their opinions about the overall operation and management of the North Carolina NERR. Appendix B lists persons who attended the public meetings.

Written comments were also accepted. Appendix C contains responses to written comments received in response to the evaluation.

The NCNERR and Division of Coastal Management staff were crucial in setting up meetings and arranging logistics for the evaluation site visit. Their support is most gratefully acknowledged.

III. RESERVE PROGRAM DESCRIPTION

A. THE NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

The Coastal Zone Management Act of 1972, as amended, established a system of National Estuarine Research Reserves that are funded cooperatively by NOAA's Office of Ocean and Coastal Resource Management and the host states or territories, which also manage the reserves. The Reserve Program has two primary missions: (1) to establish and maintain, through federal and state cooperation, a national system of reserves representative of various biogeographic regions in the U.S.; and (2) to conduct long-term research, educational, and interpretive activities in support of national coastal zone management priorities.

Toward those missions, reserve sites are selected to represent the range of biogeographic regions, estuarine types, and coastal management challenges occurring throughout the U.S. To date, NOAA has designated 26 National Estuarine Research Reserves that collectively protect more than one million acres of estuarine land and water. Two additional sites are currently in various stages of the designation process.

B. RESERVE SITE DESCRIPTION

The North Carolina estuarine system is a complex of coastal-plain estuaries, bar-built estuaries, and lagoons covering over two million acres and bounded by over 4,000 miles of shoreline. The North Carolina estuarine complex is exceeded in size only by the Chesapeake Bay system, and is similar in that it is a highly productive biological system. Of the 48 contiguous states, North Carolina ranks third after Louisiana and Alaska in the acreage of its coastal wetlands. This estuarine system is also the focus of a continuing struggle between conflicting interests (e.g., development pressures, tourism demands, commercial and recreational fishing) that affect the health and integrity of the ecosystem.

1. Background and Description of the Reserve

The State of North Carolina received its first federal matching grant from NOAA in 1982 to initiate acquisition of a multi-component Reserve. The four sites selected for inclusion in the program represent the primary types of estuaries found in North Carolina: Currituck Banks, Rachel Carson, Masonboro Island, and Zeke's Island. The NCNERR includes two distinct biogeographic regions: the Carolinian and the Virginian. The estuaries have always been important to the state economy through the commercial fishing industry and waterborne transportation. According to the North Carolina Division of Marine Fisheries, over 90% of the state's commercial fish and shellfish species depend on the estuaries for at least part of their lives. Industries such as tourism, fishing, and agriculture all depend on these areas and contribute to the multi-million dollar commercial value of estuaries in North Carolina.

Zeke's Island, Rachel Carson and Currituck Banks were formally designated in 1985. Masonboro Island was designated in 1991. These four components are part of the National Estuarine Research Reserve System and the North Carolina Coastal Reserve Program. The North Carolina Coastal Reserve Program was established by the General Assembly in 1989 to protect additional significant coastal habitats not included in the NCNERR and is administered by the NC Department of Environment and Natural Resources/Division of Coastal Management. The subsequent additions of Kitty Hawk Woods, Emily and Richardson Preyer Buckridge, Buxton Woods, Permuda Island, Bald Head Woods, and Bird Island increased the total number of sites managed by the NC Coastal Reserve Program to 10. These six sites are not part of the NCNERR.

2. Description of the North Carolina National Estuarine Research Reserve Site Components

Currituck Banks, a fresh water sound and marsh area, is a cross-section of a barrier island stretching from the Atlantic Ocean to Currituck Sound, containing dunes, inter dunal swales created by wind and water, developed fresh water marshes, and remnants of maritime shrub thickets and forest. Located about 13 miles south of the Virginia border on the northern Outer Banks in Currituck County, the 960-acre reserve is bordered by the Atlantic Ocean to the East and Currituck Sound on the west. Because the site of the reserve is located 45 miles from an inlet supply of salt water, Currituck Sound contains fresh water and also is primarily influenced by wind direction and speed, not regular lunar tides. The fresh water estuarine environment supports many fresh water plants and animals, including extensive submerged aquatic beds, cattail, bulrushes, duck potato and pickerel weed, water pennywort, bacopa, marsh fleabane, lippia, diodia, great blue heron, American egret, red-winged blackbird, gulls, sandpipers, raccoon, marsh rabbit, and white-tailed deer. There is also a herd of feral horses that occasionally roam the Reserve site. Currituck Sound is located along the Atlantic Flyway and is a winter home to many species of migratory waterfowl. Primary access is along the ocean beach at the northern limit of North Carolina Highway 12, just north of Corolla. A 2,100-foot boardwalk trail to the sound and a three-quarter mile hiking trail have been completed since the last evaluation.

The **Rachel Carson** component, covering 2,652 acres in Carteret County, is located in one of North Carolina's fastest growing areas; across Taylor's Creek from Beaufort near the state port in Morehead City, and across Beaufort Inlet from Bogue Banks. This site receives considerable seasonal use because of its location just west of Cape Lookout National Seashore and directly across from the waterfront of the tourist town of Beaufort. This component consists of three estuarine islands and a large marsh complex between the mouths of the Newport and North rivers, just behind Beaufort Inlet. These are the islands of Town Marsh, Carrot Island, and Horse Island, and the Middle Marshes and Bird Shoals areas.

The U.S. Army Corps of Engineers has a permanent easement for disposing of dredged materials from shipping channels at the Rachel Carson site along Taylor's Creek and at Masonboro Island along the Atlantic Intracoastal Waterway. Dredged material mounds to which

deposits are added have various cover types – pennywort, broomsedge, goldenrod, and shrub thicket communities, including red cedars and loblolly pines. These uplands are bordered by extensive mud flats and areas of salt marsh cordgrass. Feral horses graze on the herbs of the dredge material areas in the winter until the marsh grasses, which they prefer, grow in the spring. The eelgrass community is found in the shallows of Rachel Carson. The long blades of the underwater seagrass provide shelter for juvenile fish and shellfish. Adjacent barrier islands of Cape Lookout National Seashore protect the beaches, tidal flats, and extensive marsh areas. Site access is provided through commercial ferries or private boat.

Masonboro Island is North Carolina’s largest remaining wholly undeveloped barrier island in New Hanover County. Approximately eight miles long, it is a thin barrier beach located between two highly developed barrier island towns, Wrightsville Beach to the north and Carolina Beach to the south. The city of Wilmington is approximately six miles to the northwest. Low frontal beaches, shrub thicket areas and extensive salt marshes provide an oasis for wildlife. Some portions of the island are so narrow that woody vegetation is absent. Though Masonboro Island is not directly associated with a river, there is a definite mixing of salt and fresh waters in the sound behind the island. Salt water enters the sound area through inlets north and south of the island and mixes with fresh water from creeks draining the adjacent mainland and the Cape Fear River through Snow’s Cut. The threatened loggerhead turtle and countless seabirds nest on the island. Masonboro Island is accessed by private boats and local tour operators.

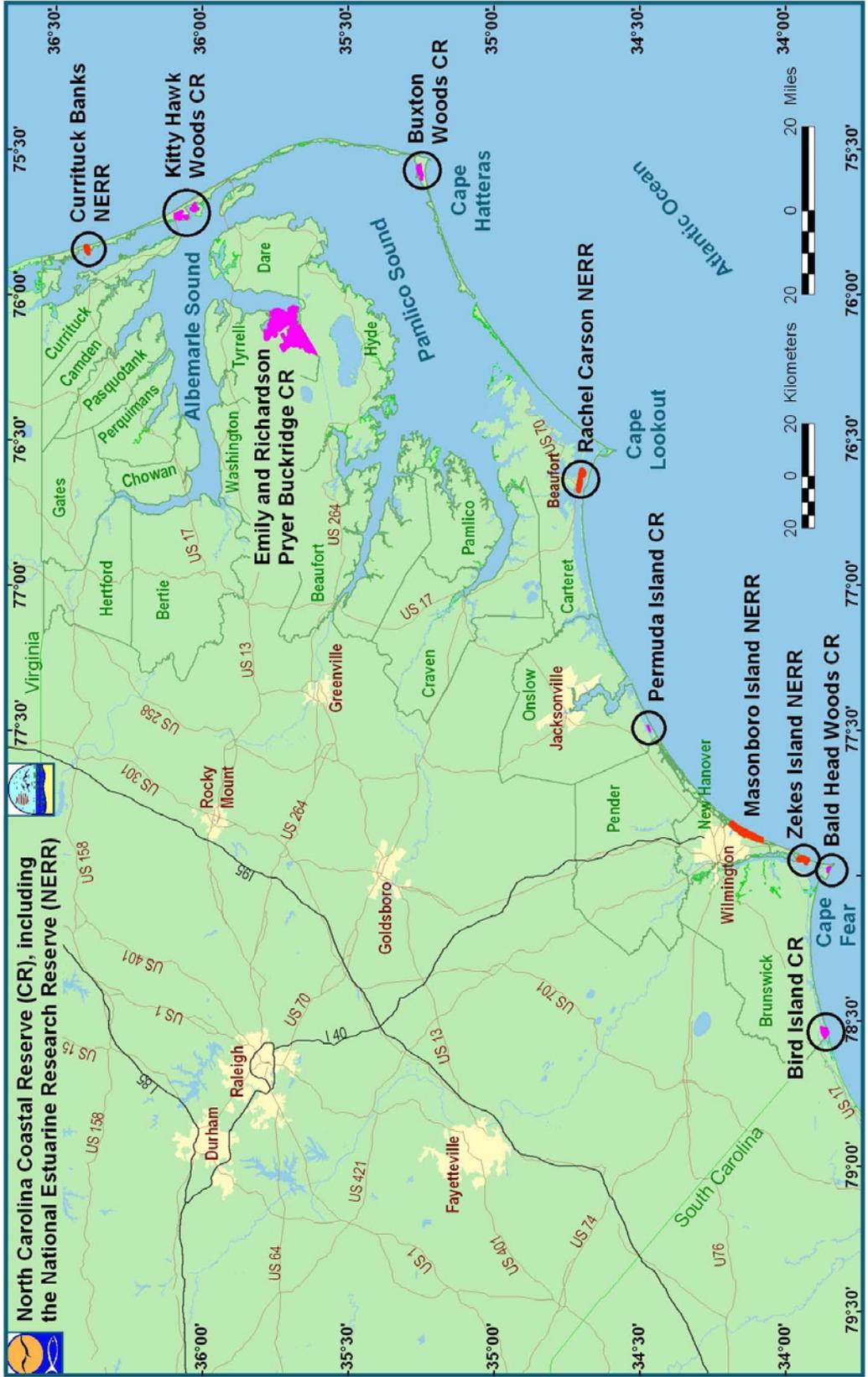
The **Zeke’s Island** component is located in Brunswick and New Hanover counties, approximately four miles south of Kure Beach. Zeke’s Island is bounded by the Fort Fisher State Recreation Area to the north, the Atlantic Ocean to the east, the Cape Fear River to the west, and the Smith Island complex to the south. The Zeke’s Island component no longer receives salt water via New Inlet, which closed in 1998, but is now influenced by fresh water from the adjacent Cape Fear River. “The Rocks,” a jetty constructed between 1875 and 1883, extends several miles and is wide enough for people to walk on. The jetty has created a lagoon known locally as “the basin.” The basin contains large salt marsh areas with an east-facing barrier beach. Parking areas and boat ramps are available at the south end of U.S. 421.

C. RESERVE ADMINISTRATION

The NCNERR is managed by the Department of Environment and Natural Resources (DENR), Division of Coastal Management (DCM). The DCM administratively houses both the state’s coastal management program and the state’s coastal reserve program, of which the NCNERR is a part. The Reserve Manager administers all ten sites in the Coastal Reserve Program – the four NERR components and the six other sites. The Reserve Manager reports directly to the DCM Assistant Director for Policy and Planning in Raleigh, who is also responsible for directing the implementation of the non-permitting functions of the state’s coastal management program.

The University of North Carolina-Wilmington (UNCW) administers a significant portion of the NCNERR program as outlined in a memorandum of understanding signed in 1989. UNCW provides support and operation services for seven permanent contract employees and office space for four of these employees at the UNCW Center for Marine Science.

The implementation of the Reserve's management plan is accomplished through staff and agency coordination for management, acquisition, and enforcement and involves federal, state, and county agencies, universities, and private organizations. Each Reserve component has a Local Advisory Committee (LAC) composed of members from the local community. The Reserve Manager holds annual meetings with each LAC to review the progress in the implementation of the Reserve Management Plan. In addition, close contact is maintained throughout the year with one or more key persons from each of the committees.



IV. REVIEW FINDINGS, ACCOMPLISHMENTS, AND RECOMMENDATIONS

A. OPERATIONS AND MANAGEMENT

The North Carolina National Estuarine Research Reserve underwent significant changes during the period covered by this evaluation. These are discussed throughout most of the following sections. Many of the changes are directly related to one another, and in some instances have had indirect influences on other areas of the Reserve's operation. The operation and management of the North Carolina NERR during the period of this evaluation have been substantively affected by these changes. At the time of the site visit, the Reserve appeared to be at a crossroads: some positive changes were set to occur in terms of staffing and facilities, but the Reserve still has work to do to regain the momentum it has lost and ensure that its programmatic obligations will be met.

1. Coordination, Communication, and Planning

Based upon the issues, concerns, and problems discussed during the evaluation site visit and outlined in the sections that follow, NOAA believes that some level of change must occur in the operation and management of the NERR. The mechanisms to pave the way for this change are also the Reserve's most pressing needs – NERR and DCM must greatly improve communication and engage in immediate strategic and longer-term planning. Much of this planning is a logical precursor to revising the Reserve's management plan. During the past four years, the Reserve has suffered from the lack of a formal facilities plan and a staffing plan. The high turnover rate in senior and other staff has left the remaining staff and division partners in need of a road map that defines the Reserve's priorities and how it would like to achieve them. These problems are exacerbated by the geographic distance and lack of communication between and among NERR components, Reserve staff, and DCM staff. With the recent and ongoing significant staff and location changes, the Reserve needs to re-examine what it wants to accomplish, who is responsible, and what the staff needs to make those goals a reality (i.e., staff support, facilities, lab space, classrooms, etc.). All Reserve staff members should be involved in all steps of this planning. At a minimum, the following should be addressed:

- Identify the issues that are important to the State of North Carolina and that the Reserve can effectively address with its education, research, training, and stewardship programs.
- Prioritize projects, programs, or functions that are appropriate to occur at each component site for the next three to five years. There may not be enough staff or enough money to conduct full-fledged, NERRS-supported research, education, and training programs at all four sites. Therefore, the Reserve needs to decide what will be emphasized at each component and identify potential partners or additional resources to fill gaps.
- The Reserve manager should establish clear roles and responsibilities for each Reserve staff member. Reserve staff should have significant input into this. Based on the priority

issues, projects, and functions at the component sites, the integration of individual staff activities into the functioning of DCM's and the overall Reserve's activities should become more apparent, as should any unmet needs. Clearly identified roles and responsibilities should also provide clarity to staff about how their performance will be evaluated.

- Consider how NCNERR staff could become involved in DCM committees when appropriate; e.g., the coastal program's science advisory panel or the Coastal Resources Commission.
- Confirm that the current or planned facilities at each component are sufficient for what will be accomplished, how staff are distributed, and how unmet as well as future needs will be met, based on the functions and priorities identified for each site. Two recent requests (one from ERD and one from the Beaufort NOS lab) for out-year plans for Reserve facility needs were unanswered by the Reserve management and DCM management for the NCNERR. Because of the seriousness of the situation without an approved facilities plan for the NCNERR, the Reserve will likely not be eligible or will compete poorly for Section 315 funds for any new facilities.
- Establish clear roles and expectations for formal partners. The Reserve and the University of North Carolina-Wilmington (UNCW) should concentrate on what are their shared mission and goals, the practicalities of how space will be shared, and the administrative duties of both parties when UNCW is subcontracted to pay salaries. The Reserve will need to follow a similar process with the NOAA NOS Center for Coastal Fisheries and Habitat Research at Beaufort and any new partners. Such deliberations and discussions should result in the development of new and the revision of existing memoranda of understanding or agreement for incorporation into the Reserve's management plan.
- Identify and establish safety standards (by facility, by individual staff member, or by programmatic staffing unit) appropriate for the roles established for each Reserve staff. No person should be doing field work without a safety plan. Research lab space and any boat activities need to comply with safety standards.

The Reserve needs to focus on all these issues and more through an inclusive process of planning, which could occur in several stages. The first step in the planning process for the areas noted above and other issues and problems discussed elsewhere in this document should be for the NCNERR staff and DCM to participate in a facilitated discussion with an external facilitator to determine: 1) what support functions the NCNERR wants and needs from DCM; 2) what DCM expects and needs from Reserve staff; and 3) what gaps exist between expectations and reality. It was difficult to determine the degree to which many of the problems the evaluation team heard about on the site visit were the result of a lack of trust and effective communication, and which were real. Once these issues are identified and clarified, both staff and management need to be involved in developing and implementing solutions. It may be appropriate to include a representative from major partners like UNCW, Duke University, and perhaps DENR in this conversation as well. NOAA Estuarine Reserve Division staff are willing and prepared to participate as appropriate.

This effort should lead to the second step in the overall planning process – the development of several issue specific strategic plans, identifying specific actions with deadlines to address urgent problems, and issues and areas identified as priorities. To address immediate issues and problems, the Reserve must develop several strategic single-issue plans for safety, staffing, and facilities (discussed in later sections of this document). These plans address elements that need immediate action, form the basis for other actions, and other areas that are priorities in the near term. Any existing staffing and facilities planning efforts should be reviewed as part of this process and updated and incorporated into the new plans if appropriate.

Creation of these plans should help prepare the DCM and the Reserve for more in-depth, longer-term comprehensive planning, resulting in revisions to the Reserve’s management plan, the third step in the planning process for the NCNERR. The comprehensive planning also needs to include the DCM, the Reserve and major partners and should be done as a part of the management plan revision process over the next 12-18 months. The Reserve’s current management plan was completed in 1998, so it is due for revision. This provides an opportunity for the Reserve and DCM to complete many necessary strategic planning efforts, including staffing plans, facilities plans, safety plans, memoranda of understanding, and other issues raised in this findings document. These plans can and need to be incorporated into or reflected in the management plan.

Maintaining the NCNERR identity, tracking federal and state funds carefully and separately, and supporting staff for both the Coastal Reserve Program and the NERR will be challenging but necessary. The DCM must determine where the role and goals of the NCNERR as part of a national system coincide with the purposes of the state Coastal Reserve Program. It is important and necessary to identify state sources of financial support for all non-NERR coastal reserves, because Section 315 federal funds cannot be used to manage or staff lands that are not designated as a NERR. The Reserve manager’s time may be spent on both the state coastal reserves and the NERR, but the split of time will need to be clear in grant applications, and time spent on the non-NERR sites is not allowable match for the NCNERR operations grant. Projects that are funded with NOAA monies must be identified as NERRS projects. They may also be identified as elements or projects of the state Coastal Reserve Program, but it is important to maintain the NERR identity and financial accountability when all or most of the support is from Section 315 funds. With the exception of staff and funding at Buckridge, state funding support for the Coastal Reserve Program seems to be lacking.

The National Estuarine Research Reserve System and the North Carolina State Coastal Reserve Program are partners, but the state must invest in the coastal reserve program for the partnership to be effective. This issue is further discussed under the section below entitled “State Coastal Reserve Program.”

If DCM or the NCNERR believes that the issues and potential solutions identified are insurmountable or not consistent with the mission of the Division, the state should revisit the NCNERR placement in DENR. Much of the focus of the DCM is necessarily directed toward permitting. The mission of the Reserve is unique within the DCM. No other section of DCM

dedicates so much time to land management, research, and education. The rationale for its placement in the policy and planning section may have been relevant when the Reserve was new and in the designation process. However, now that it is fully operational, and with the increase in coastal reserve sites in the state system, it may be time to reconsider that placement. Some of the communication problems may stem from the fact that the Reserve is placed relatively “low” in the organizational structure of DENR and DCM. Therefore, the Reserve manager may not be present or consulted when decisions are made that will impact the Reserve. The unique goals of the NERR may not be the highest priority of the policy and planning section.

One possible option is to move the NERR manager position to an assistant director position within DCM. The DCM director is located in Morehead City; the assistant director for policy and planning supervising the Reserve is in Raleigh. Since the Reserve manager will be located in Beaufort very close to Morehead City, it makes sense both organizationally and geographically for the Reserve manager to report directly to the director.

There may be other organizational locations within DENR that provide a good fit for the NCNERR’s land management, research, and education missions. DENR, DCM, and the Reserve are in a position to evaluate those opportunities. The important focus in considering these issues should be on the NCNERR program goals and objectives and how they would most closely fit in any particular organizational unit.

In summary, NOAA believes significant improvements to communication and new strategic and longer-term planning efforts must occur if the NCNERR is to regain lost momentum, regain its stature within the national reserve system, and ensure that its programmatic obligations will be met. Planning should address staff responsibilities, define financial support for the program, consider all options for the successful reserve placement within a state agency or academic institution, outline facilities needs across all sites, redefine priority program goals, define and develop collaborations that push forward reserve initiatives, and direct implementation processes that can be achieved in both immediate and long term periods. OCRM and ERD staff will fully support NCNERR staff and DCM efforts to the maximum extent possible during this time of planning and development. The Reserve must then complete revisions to its five-year management plan, incorporating many of the short-term plan elements when appropriate.

NECESSARY ACTION: The NCNERR must submit a complete draft management plan to OCRM for review and approval by March 31, 2006. In addition to the systemwide requirements for content of the management plan, and staffing, facilities, and safety plans discussed elsewhere in these findings, the NCNERR management plan must also incorporate or reflect the following:

- a) state financial support for the Reserve;**
- b) definition of priority program goals, both Reserve-wide and at each of the four site components; and**
- c) planning to develop collaborations that push forward reserve initiatives, including the development of new, or revisions to existing, memoranda of understanding or agreement.**

2. Staffing

The period covered by this evaluation saw significant changes in staffing at the Reserve and in the Division of Coastal Management (DCM). The DCM changed directors in 2004. The incumbents of all three “core positions” of the Reserve resigned within six months of each other. The education coordinator resigned in July 2003 after eight years with the Reserve, the research coordinator resigned in October 2003 after 13 years with the Reserve, and the manager resigned in February 2004 after almost 20 years with the NCNERR. Two other staff members also resigned during this time period. One of the education staff members was hired into the education coordinator position, but his vacant position will not be filled. The Reserve manager position remained vacant for a year despite multiple advertisements and attempts to fill the position, and the DCM assistant director, who normally supervises the Reserve manager, served as acting manager in addition to retaining his own duties. His office was in Raleigh, while the Reserve staff were all located at coastal locations. At the time of the site visit (December 2004), a new manager had been hired but would not begin until the end of February 2005.

The new research coordinator's first day on the job was the first day of the site visit (December 6, 2004). Thus, both the manager and the research coordinator positions have been vacant for more than a year. Failure to fill critical positions within a reasonable time period has exacerbated existing problems and demoralized staff throughout the Reserve. The evaluation team met with all current staff as well as five former staff. All indicated concern about the events of the past few years and were discouraged about whether Reserve operation and management would improve.

The evaluation team observed that the DCM and the NCNERR staff have different perceptions about the recent changes in location, staff, and administration at the Reserve. The

DCM and the Reserve need to effectively communicate about what are the challenges and

opportunities of this transition and come to solutions together. Improved communication is critical to rebuilding trust and staff morale. As is discussed elsewhere in this document, the DCM has taken some actions that change the way some administrative activities occur. These changes have created some misunderstanding and frustration on the part of both DCM and the NCNERR. To regain and maintain a level of trust and transparency, DCM and the NCNERR must improve communication and support, particularly during programmatic and administrative transitions. Filling the manager and research coordinator positions is a positive step and should help the Reserve to regain lost momentum in its operations. However, the Reserve's new manager and new research coordinator face significant challenges, and it is absolutely essential that communication between and among Reserve and DCM staffs be significantly improved.

One way to address some of the staffing issues and challenges (as well as other concerns related to the geographic spread of the Reserve's components) is to develop and implement a staffing plan. With input from all Reserve staff and DCM, a staffing plan should identify the expectations for each position, prioritize tasks for each position over the next several years, and identify who will be responsible for or take primary lead on tasks not linked to a particular position. For example, the education coordinator was responsible for information technology and web site development in his previous position. That vacant position will not be filled, but someone at the Reserve will still need to work with DCM information technology staff on web site maintenance. The staffing plan should also address the planned hiring and role of a southern sites manager; the heavy workload of the northern sites manager serving as Stewardship Coordinator for all the NCNERR components and as manager of three separate sites, both national and state; the challenge of conducting sound research with frequent turnover in temporary staff, leading to time wasted in continually training new staff; the desire or need for a full-time assistant with the SWMP activities; the enforcement issues at all components; and the interest voiced by DCM staff to have NERR staff more involved with DCM committees (e.g., the science advisory panel, the Coastal Resources Commission).

High staff turnover, fewer staff overall, challenges in providing research staff support, staff supporting both NCNERR and state coastal reserve sites, and the loss of state funding for 2.5 positions with its effect on the ability to provide state match all affect the critical ability of the NCNERR to meet its programmatic obligations and implement its federally approved program. A staffing plan is necessary to begin to address these issues. A recommendation to address this issue is included at the end of the following section entitled "Facilities, Facilities Plan, and Infrastructure."

3. Facilities, Facilities Plan, and Infrastructure

Until approximately 20 months ago, the research coordinator and research staff, the GIS specialist, the NCNERR manager, and a southern sites manager position were located at the University of North Carolina at Wilmington (UNCW) campus. The education coordinator and staff were renting space from the Duke Marine Lab on Pivers Island in Beaufort. The northern sites manager was renting space from the town of Kitty Hawk. Now, however, there are

significant changes taking place in terms of location and facilities.

WILMINGTON: The Division of Coastal Management (DCM) has moved many functions and staff to the coast. In an effort to improve reserve communications and interaction between reserve functions and between the Reserve and the division, DCM initially directed the Reserve to move all offices currently in Wilmington to Beaufort. There was minimal, if any, communication or discussion with Reserve staff or NOAA's Estuarine Reserves Division (ERD) about this decision. After discussions with ERD, DCM decided to move the vacant manager and research coordinator positions to Beaufort but keep the SWMP technician and research assistant positions and create the southern sites manager position in Wilmington to provide continuation of the long term monitoring that has historically taken place there.

The building in which the Reserve research program is currently located on the UNCW campus will soon be destroyed. UNCW has had plans to construct a new building, and Reserve staff will have space in the new building. A construction grant was awarded to NERNER to provide some funding for the building, but the Reserve had serious problems expending the funds. In part because of the lack of a facilities plan, the construction of new office and lab space for staff located at UNCW was delayed multiple times over the course of six years and through multiple grant extensions. Plans call for the NERNER to be located in temporary space until the expansion of the new UNCW building is complete, at which point the SWMP technician, research assistant, and the southern sites manager would have space in the new UNCW building. The Reserve staff will have approximately 1,500 square feet in the new building, including four offices, a wet lab, storage facilities, and shared lab space for equipment. At the time of the site visit, the DCM and UNCW were still negotiating revisions to a memorandum of agreement to house the Reserve at the University. Wilmington staff will be approximately 70 miles distant from Beaufort, where the Reserve manager and research coordinator will be moved (see below).

BEAUFORT: Two years ago, the Reserve and its education staff became involved in a plan to build a joint facility with the NOAA NOS Center for Coastal Fisheries and Habitat Research at Beaufort on Pivers Island. The space was designed to house the education staff, who are currently in offices on Pivers Island. When DCM decided to move the GIS technician, the research coordinator, and the reserve manager to Beaufort from Wilmington, DCM wanted these staff to be included in the joint facility. The decision to move staff was based on program needs; however, there was no plan for the facilities needed to house them (either the amount or type of space). The designs were far enough along that no new lab space for the research coordinator could be added and only a few extra cubicles could be carved out of the NERNER's already allotted space. The Reserve space totals 2,405 square feet and includes eight offices, two cubicles, a reception area, a student workroom, and a copy/storage area. The Reserve and NOS will share some building facilities (e.g., auditorium space, classroom, conference room, and kitchen) and there will be other costs to be shared or divided, so it will be necessary for the two parties to enter into some sort of agreement, which had not been done at the time of the site visit. There is also a need for furnishings or other office fittings that may not be met. Construction on this new facility should be complete in about 18 months. In the meantime, the new manager and research

coordinator will occupy office space with DCM staff at a nearby Morehead City office, although there will be no research space there.

CURRITUCK BANKS: The town of Kitty Hawk is considering demolition of the structure that has served as an office for the Reserve for eight years, but it is interested in donating property to the Reserve to construct a new office. The current space is small and does not include research and education facilities. The role of the northern sites manager and the priority functions to be conducted at Currituck Banks need to be defined more clearly so that any future space can fully meet those needs rather than restrict those roles and activities. The Kitty Hawk office is approximately 25 miles from the Currituck Banks component, and Reserve staff at Kitty Hawk are approximately 200 miles from staff in Beaufort.

In the short term, some temporary space problems have been solved, but there is no research lab space available for the research coordinator (or others) moving into the temporary space in Morehead City. This presents a concern, since one of the core functions of the NCNERR is to complete research in estuarine sites. Beyond the very short term, there is no long-term plan for the assessment of space needs at Currituck; for the details of a written agreement with NOS in Beaufort, research space needs, and the future needs at Beaufort; and no revised memorandum of agreement with UNCW for housing Reserve staff there. The Reserve was asked to provide a facilities plan to ERD that articulates the Reserve's needs so that ERD can prioritize spending. The Reserve was also asked about its "10 year" facilities vision for Pivers Island by the NOAA NOS Center for Coastal Fisheries and Habitat Research at Beaufort. There was no response to either of these requests despite the issues involved in moving more staff to Beaufort than originally planned and the lack of any dedicated lab space and uncertain future space in Kitty Hawk.

Development of a facilities plan must be a priority for the Reserve. Opportunities for funding and input into planning have been lost because no such facilities plan exists. The plan needs to look at short-term needs (furniture for the NOS building in Beaufort, for example) and long terms needs as well (overall research space needs and facilities for the northern Currituck Banks site, for example). The facilities plan will need to map the functions that the Reserve sees as a priority at each component. Most significantly, the Reserve must determine what activities will take place at each component. For example, will research activities occur at all sites? Where will lab space be important? If the Reserve chooses to expand SWMP, where will it do so? Where will other monitoring activities take place? At which components will the Reserve host training or education programs? The answers to these questions will also provide information that can be used in a staffing plan to prioritize each staff member's tasks and responsibilities. NERR construction funds will not be awarded to the NCNERR until a facilities plan has been completed and approved by NOAA.

Another important aspect related to both the staffing plan and the facilities plan should be the consideration of staff safety in conducting activities and the 'equipment and infrastructure' needs of staff related to their safety. This is particularly important with regard to research lab

safety and when staff are stationed or operate alone (for example, the northern sites manager working alone in the field). Safety gear, radios and other communication equipment, and safety standards for research lab space must be addressed.

NECESSARY ACTION: The Reserve must develop separate outlines of a staffing plan, a facilities plan, and a safety plan and submit these outlines to OCRM by December 31, 2005, for review and approval. Complete staffing, facilities, and safety plans must be incorporated into the Reserve's management plan and be submitted to OCRM as part of the complete draft management plan as required in the Necessary Action addressing the management plan.

4. State Coastal Reserve Program

The State Coastal Reserve Program consists of ten sites: the four components of the NCNERR and six other coastal reserves. The state considers that all DCM and UNCW employees who work with the NCNERR also work with the state Coastal Reserve Program, and the Reserve Manager is directly responsible for all ten sites. Although many education, research, and stewardship programs occur at the NCNERR sites, staff are encouraged to implement programs and land management strategies at the other coastal reserves. The northern sites manager (who also serves as the NCNERR Stewardship Coordinator) is directly responsible for those activities at one NERR and two state reserve sites. The southern sites manager position is responsible for activities at two NERR and three state reserve sites. The Reserve education staff currently located in Beaufort are responsible for one NERR site component. The sixth state coastal reserve (Buckridge) has its own on-site manager.

The Buckridge state reserve manager's salary and budget is supported by state funds, one half of the Reserve manager's salary is funded by the state, and the GIS specialist's salary has come from CZM Section 306 funds during the period covered by this evaluation. (Since the site visit, the Reserve indicated that all of the Reserve manager's salary will be supported by state funds in FY 06.) All other Reserve positions are funded from the NCNERR's CZM Section 315 cooperative agreement award. This means that NCNERR staff time, expertise, and Section 315 monies currently are being used to support areas and tasks that have not been designated as a component of the NERR system. This was of less concern to NOAA in previous years when there was additional state support in the form of full state funded salaries for the Reserve manager, the research coordinator, and the education coordinator.

The situation now, however, raises significant concerns about the state's commitment to and support of the North Carolina National Estuarine Research Reserve and appropriate use of Section 315 funds. NOAA is greatly concerned that federal funds awarded for the purpose of operation of a NERR are being used to support staff who work at non-NERR sites or on

activities involving non-NERR sites. NOAA also is concerned about the visibility and identity of the national estuarine research reserve and its incumbent national program components and requirements within the state reserve system, which is now almost entirely dependent upon federal NERR funding. When the evaluation team expressed concern during the site visit about the emphasis on the state reserve program over the national program, DCM staff indicated that they believed there had been too much emphasis on the national program in the past. Given that perception, NOAA will work with DCM to make clear the connection between federal funding and allowable uses and costs associated with federally designated sites in annual grant work plans and future management plan revisions.

5. State Financial and Administrative Support

As noted above, at the time of the last evaluation in 2000, the Reserve manager, research coordinator, and education coordinator were all supported by state funds. Now, however, the research coordinator, education coordinator, and half of the Reserve manager salaries are paid from Section 315 funds. As is the case in many states, North Carolina has faced a serious financial shortfall and budget crisis during the period covered by the evaluation. The DCM has indicated it intends to move Reserve positions back to state funds rather than from Section 315 funds as the state budget improves. (See Appendix D, State's Response to the 2000 evaluation findings Program Suggestion dealing with NC NERR staffing.) The salaries of these three positions have historically provided the bulk of NOAA cooperative agreement award matching funds.

The situation now raises concern about the DCM's ability to provide financial support to the NCNERR. Although half of the Reserve manager's salary has been used as match, a portion of the manager's responsibilities lies outside the NCNERR, raising a question about the appropriateness of that funding as match. The Reserve used several "one time" match sources for the FY04 operations grant, such as a private donation for the Rachel Carson boardwalk and a boat that the state is giving to the northern sites manager for use. The staff also has had to include the value of volunteer hours and "donated" meeting room space as match (which can vary from year to year), in lieu of NOAA's preference that the state support staff positions. Secure non-federal match for NCNERR operations will be a serious issue with the FY05 grant and the years beyond.

NECESSARY ACTION: The DCM and the Reserve must address the appropriate use of federal funds and develop options for state support for the NCNERR, including match identification. Written documentation of this effort must be submitted to NOAA in April 2006 for review and approval as part of the draft cooperative agreement application due at that time.

At the time of the last evaluation, UNCW received funding through a contract with the state to administer the functions of the Reserve staff in Wilmington and Beaufort. This included purchasing, travel, some personnel activities, and budget administration. Within the last two years of the period covered by evaluation, the DCM decided that all of those functions would be handled in Raleigh and be consistent with state agency procedures. That is certainly within the DCM's purview. All staff affected by this change, however, told the evaluation team they felt the change was abrupt and they were given no opportunity to discuss or provide input when DCM made this decision. They were familiar with how UNCW operated, were able to effectively operate through the policies and procedures, and believed they were not adequately prepared for the sudden change. Of greatest concern to the staff, however, is that there is only one administrative officer in DCM located in Raleigh to serve all DCM staff, including the Reserve. They are concerned that it will be far more difficult and time-consuming to obtain information they need, and at the time of the site visit they reported that purchasing, processing travel, and receiving up-to-date information on available budget is slower and more difficult with the state than under the previous arrangement. At the time of the site visit, the staff in Wilmington reported to the evaluation team that they believed they had not received adequate training on using the new procedures but expressed an interest in formal instruction on the new purchasing guidelines.

This is likely a situation that was exacerbated because so many key Reserve staff were not in place. In discussions with the administrative officer in Raleigh, she has indicated she will do whatever is necessary to provide information to the staff upon request and in a timely manner. She is also compiling a notebook of information to present to the new manager. The issue of concern to NOAA is the apparent lack of communication between Reserve staff and DCM during this transition. In the absence of a Reserve manager, it is DCM's responsibility to communicate changes in process and to ensure all staff are knowledgeable about new procedures.

B. RESEARCH AND MONITORING

1. Research Activities

Research activities at the Reserve have been affected during the period covered by this evaluation because of the vacancies in the research coordinator and research support staff positions for an extended period of time. Nevertheless, the remaining staff conducted geographic information system and systemwide monitoring program activities, and several NERRS graduate research fellows conducted research projects at sites within the NCNERR.

The Reserve has built several partnerships for research with other entities. What impressed the evaluation team during the course of the evaluation site visit, however, were the numerous other opportunities for research partnerships that were discussed that have yet to be fully explored by the Reserve. In the Currituck Banks area, the Albemarle-Pamlico Sound National Estuary Program staff is interested in expanding its water quality monitoring and

estuarine health indicators. The U.S. Fish and Wildlife Service/Currituck National Wildlife Refuge personnel suggested additional research opportunities regarding impacts of wild horses on habitats, exotic species, and development of long-term water quality/monitoring data. Staff at the Army Corps of Engineers Field Research Facility in Duck discussed the possibilities and opportunities for research in the Currituck Banks area related to the hydrological system and establishment of long-term data monitoring sites. Elizabeth City State University has worked with the northern sites in research previously, and additional collaborations likely would provide research support for the northern sites manager. The UNC Coastal Studies Institute located in Manteo may also offer additional research support and opportunities.

At the Rachel Carson site component in the Beaufort area, the Reserve has rented space from the Duke University Marine Lab, and it is clear that some of the researchers at Duke make great use of the Reserve for student and faculty research and are active in assisting with education activities. Duke staff with whom the evaluation team met were pleased to learn that the research coordinator would be located in Beaufort. One researcher mentioned an opportunity to collaborate with the Reserve to produce a new field guide for the area. North Carolina State University and the University of North Carolina also have campuses in the area and have partnered on occasion with the Reserve. NC State hosts the North Carolina Sea Grant program, and there may be opportunities to work with Sea Grant to collaborate on outreach, training, and education roles and projects in the Beaufort area and the state in general. The NOAA Center for Coastal Fisheries and Habitat Research, with whom the Reserve will share facilities in Beaufort, is an obvious match for research opportunities and collaboration.

The DCM and other DENR staff suggested several areas in which Reserve research and the research staff could integrate efforts: biological indicators and monitoring to support and advance Department water quality and nonpoint source pollution prevention efforts; presence of the research coordinator on the science panel advising the Coastal Resources Commission; input and involvement in the implementation of the state's Coastal Habitat Protection Plan that was adopted as required by the North Carolina Fisheries Reform Act of 1997; and involvement in the DENR's "One North Carolina Naturally" initiative, whose goal to coordinate statewide conservation will identify research needs.

All of these opportunities should be explored by the new Reserve manager and research coordinator.

PROGRAM SUGGESTION: The DCM and the Reserve are strongly encouraged to seek out and take advantage of the many opportunities for partnerships and collaborations that exist at all the site components, particularly when those opportunities could enhance or strengthen Reserve activities.

As part of the Reserve's effort to conduct both basic and applied research and to prepare

the site profile required by the NERR program, the Reserve is conducting basic biological inventories of the biota in and near all four NCNERR components. In November 2002 the “Checklist of the Fishes Documented from the Zeke’s Island and Masonboro Island Components of the North Carolina National Estuarine Research Reserve” was published in the NERRS Technical Report Series. This important baseline work will serve as a benchmark to measure future changes.

During the period covered by this evaluation, the NCNERR was involved in several habitat related research projects (some of those mentioned briefly here are discussed in greater detail under the “SWMP” and “GIS” sections immediately following). The Reserve received funding from the Cooperative Institute for Coastal Estuarine Environmental Technology (CICEET) to develop habitat assessment tools. This involved the development of technology that gathers water quality parameters over a large area by use of a towed YSI meter. Most of the technical work was conducted by an outside contractor, but testing of products in the NCNERR and in other reserves was the NCNERR’s responsibility. Tests were completed in Rookery Bay, Wells, and NCNERR sites. A paper was presented on this work at the 2001 Estuarine Research Federation and a final report was completed. The Reserve continued to collect basic data layers from Reserve sites and acquire pertinent data from other agencies, and to develop contour maps for bathymetry and water quality data. Sediment mapping for Zeke’s Island and for Masonboro Island was completed during the period covered by the evaluation. A research project done on fish habitat utilization provided important information to DCM and the Coastal Resources Commission for its work on beach renourishment issues.

Work on the Reserve’s site profile has begun but has lagged behind during the last several years. The Reserve needs to complete the site profile.

NECESSARY ACTION: The Reserve must complete its site profile. An outline of the site profile must be submitted to NOAA within 120 days of the date of these findings for review and approval. A complete draft of the site profile must be submitted to NOAA by March 31, 2006, for review and approval.

2. System-wide Monitoring Program (SWMP)

The NCNERR was involved in the NERR systemwide establishment of the SWMP. Despite interruptions to the research program over the past 18-20 months, the SWMP data has remained high quality and has been submitted on time. During the period covered by this evaluation, two water quality monitoring stations were added, as was a nutrient/chlorophyll a component. The research staff also began development with a contractor of a real-time (telemetry) data management and reporting system for NERR systemwide use. This involved development/fabrication of both software and hardware for the 20 participating reserves. As of October 2004, 17 of the 20 reserves had received all or some of the equipment and software

necessary to complete the project. Unfortunately, some problems arose with administration of this grant during the time period when research staff and reserve manager positions were vacant.

ACCOMPLISHMENT: The Reserve's System-wide Monitoring Program has submitted high quality data on time during the period covered by this evaluation despite general disruptions to the research program.

3. Geographic Information System (GIS)

The Reserve has a dedicated GIS specialist, and GIS activities were significant during the period covered by this evaluation. The Reserve GIS has evolved into an integral NCNERR resource and is indicative of integrated research, stewardship, and education efforts. Output from the GIS is routinely incorporated into a variety of technical, educational, and outreach messages and modes of communication, including the Reserve's web site.

A major Reserve GIS effort involved processing Habitat Assessment Tool (HAT) data for estimating estuarine metabolism for the Masonboro Island and Zeke's Island sites. HAT is a towed water quality monitoring device. The analyses were in support of a research project. Data were collected by research staff for 19 HAT transects during the spring and summer of 2003 to document dawn and dusk conditions at the study sites, and salinity, temperature, percentage of dissolved oxygen (DO), and DO distribution maps were interpolated from each transect. Collection times were plotted on tide charts to illustrate tidal dynamics at the time of data acquisition; estimates of estuarine metabolism were calculated for each dawn-dusk pair of water quality distribution data sets. Four maps were then derived for each pair: air-sea exchange, net apparent production, night respiration, and net ecosystem metabolism. The methods and results were presented at a national conference.

A collaborative project was organized by the Reserve GIS and the North Carolina Zoo education staffs to help map surface sediments for the Masonboro Island estuary. In 2000, teams of middle and high school teachers learned a variety of field skills and GIS concepts, then conducted sediment sampling. Samples were analyzed for grain size composition and results were entered into the Reserve's GIS. A sediment grain size distribution map of Masonboro Island estuary was then interpolated from the point sampled data. Techniques and results were presented at a national conference.

ACCOMPLISHMENT: The Reserve has a strong geographic information system component that is effectively and routinely integrated into research and education efforts.

C. EDUCATION AND OUTREACH

1. Education and Outreach Programs

Because the education and outreach staff are located at the Rachel Carson component at Beaufort, education activities tend to be centered there, particularly for school groups. Other Reserve site components are used for education activities as staff time (of both education and other NCNERRR staff) is available. The Reserve's education programs include a broad range of activities to reach different target audiences. EstuaryLive, a program that began in North Carolina in 1998, has grown and expanded to be one of the premier programs celebrating National Estuaries Day in September each year. NCNERR also has continued to conduct local EstuaryLive broadcasts from the Rachel Carson Site both in the fall and spring of each year. In the fall of 2000, EstuaryLive originated from the Masonboro Island site for the first time. This program has evolved to include specific topics such as invasive species, reptiles, and even cultural sessions focusing on topics such as colonial boat building. The program involves the collaboration of many partners, including Duke University Marine Lab, UNC's Institute of Marine Science, NC Aquariums, Albemarle-Pamlico NEP, NC Maritime Museum, and NOAA lab in Beaufort.

Summer public field trips have been offered with an increasing number of participants. The total number of field trip participants has more than doubled in the past four years. In addition to a walking trip, a two-hour boat trip was added in the 2003 field trip season. Beginning in the 2004 season, the interpretive volunteers set out with a new marketing strategy and increased public participation in educational field trips from the previous year.

At Currituck Banks, the northern sites manager has begun to develop a partnership with the North Carolina Wildlife Resources Commission, which is constructing the Outer Banks Center for Wildlife Education very close to the Currituck Banks site component. The Center will include some exhibit space for the Reserve, use docents to conduct field trips at the Reserve, and feature a clip about the Reserve in the Center's video presentation. The Center provides a wonderful opportunity for the Reserve to strengthen education and outreach activities at Currituck Banks without compromising habitat with visitor overuse or building a visitor center. The Reserve and the northern sites manager are to be commended for recognizing the potential and benefits of such an educational and outreach partnership.

The education and research staffs have collaborated on a variety of projects, including a red drum project with an NCNERR Graduate Research Fellow and local high schools during late 2000. In 2001 a water study program was started with the local elementary school and continues each late winter/early spring. In addition, a partnership with the local middle school has evolved into a premier partnership project with GIS staff; 6th grade students combine a habitat study on the Rachel Carson site with GPS/GIS mapping. This project is intended to be a model for future projects with the 6th graders, as well as for additional groups.

The Division of Coastal Management Public Information Officer has worked with the Reserve in a variety of ways, particularly with the education and outreach staff members, and has been instrumental in helping the Reserve update its informational brochure, and website, and

editing other outreach materials.

Education staff members remain involved in professional organizations and contribute at annual conferences by presenting sessions. Participation in organizations includes the National Marine Educators Association, the Mid-Atlantic Marine Educators Association, the NC Science Teachers Association, and the NC Environmental Educators Association.

ACCOMPLISHMENT: The Reserve has been able to increase its educational and outreach activities through a continued investment in the use of volunteers, partners, and varied media mechanisms. In particular, the developing partnerships with the Outer Banks Center for Wildlife Education and the ongoing work with the DCM public information officer are recognized as beneficial to the educational mission of the Reserve.

2. Coastal Training Program (CTP)

The Reserve's Coastal Training Program (CTP) has strengthened its presence in North Carolina during this evaluation period. The Reserve submitted and received approval for all required planning documents (needs assessment, market analysis, strategic plan, marketing plan, and advisory committee). The CTP has successfully partnered with county and state agencies to address priority training needs. For example the CTP partnered with DCM on North Carolina Clean Marina efforts, with the North Carolina Coastal Nonpoint Source Program (DCM and the Division of Water Quality) on nonpoint source pollution education, and with the North Carolina State Cooperative Extension Service in Craven County on septic tank workshops. The DCM provided funds to mail the CTP needs assessment for marina operators for the Clean Marina program.

Reserve staff have used internet technology to broadcast live training to coastal decision-makers on the site www.CoastLive.org. With funding support from the Cooperative Institute for Coastal and Estuarine Environmental Technology, CoastLive broadcast "Microbial Metabolism as a Measure of Salt Marsh Function" (from the University of Maryland's Center for Environmental Science in December of 2000) and "Petroleum Bioremediation" (from the University of New Hampshire in May of 2001). "Identifying, Tracking and Understanding Fecal Contamination in NC Coastal Waters" (broadcast from Duke University Marine Lab in September of 2002) was produced with funds from the North Carolina Coastal Nonpoint Source Program, and the Coastal Training Program funded "Funding Environmental Improvement in Your Community: Funding Agencies and Grantwriting Basics."

In addition to training via the Internet, the CTP has produced and conducted workshops, including: "How to Conduct Needs Assessment for your Target Audience," "The Importance of Buffers to a Coastal Marsh," "Managing Visitor Use in Coastal and Marine Protected Areas,"

and “Funding Environmental Improvements in Your Community: Funding Agencies and Grantwriting Basics.” Additionally, some workshops are produced as a series, occurring in multiple locations in North Carolina’s 20 coastal counties. These include: “Septic System Health for Realtors” (including real estate license continuing education credits), “Phase II Stormwater Rules,” and “Controlling Microbial Pollution.”

Additional publications have been produced during the period and are mailed to local governments and environmental non-profit agencies and distributed at numerous training events. In addition to the “Microbial Pollution” bulletin and brochure, a 54-page document consisting of four chapters and three appendices was created on the topic by the Reserve for the North Carolina Coastal Nonpoint Source Program as a reference manual for coastal decision-makers.

ACCOMPLISHMENT: The Reserve’s Coastal Training Program is fully operational and is a robust element of the NCNERR. Of particular note is the development of a suite of materials on the topic of microbial pollution for the state’s Coastal Nonpoint Source Program as reference materials for coastal decision makers.

3. Public Involvement and Volunteer Programs

The Reserve uses volunteers to lead boat and walking tours at Carrot Island at the Rachel Carson component. Each volunteer receives training from the NCNERR staff. Volunteers also assist with “one time” projects like beach clean-ups, tree removal, or other emergency projects. The education staff updated Reserve brochures and volunteers placed them at popular tourism information centers around Beaufort, resulting in an increase in tour participation.

There are four local advisory committees (LAC) for the NCNERR components (one each for Currituck Banks, Rachel Carson, Masonboro Island, and Zeke’s Island). The LACs have small memberships and each meet once a year, at which time the Reserve manager updates each LAC on activities at the Reserve. The evaluation team met with representatives from all three LACs, who believed it might be appropriate to reconsider the role of the advisory committees as well as their membership. For example, all indicated a willingness to meet more than once a year, become more “advisory” and proactive, and increase membership to include people from more diverse backgrounds (e.g., a “younger” generation and possibly local enforcement personnel). NOAA suggests that the Reserve reconsider the membership, roles and uses, and meeting schedule of the LACs as the Reserve management plan is revised.

PROGRAM SUGGESTION: NOAA encourages the NCNERR to reconsider the membership, roles, and meeting schedules of the local advisory committees (LACs) as it revises the Reserve’s management plan to seek ways in which the LACs might better serve as mechanisms for citizen input and involvement.

The Reserve also benefits from a nonprofit “friends” group known as the Carolina Estuarine Reserve Foundation (CERF). Most of the members and support activities were located in Beaufort, but recently the Beaufort CERF lost momentum and closed out the Beaufort office. The Reserve’s northern sites manager rekindled interest for the friends group, and a new board has been assembled at a headquarters office in Kitty Hawk. Although still trying to increase membership and activities, the group has established a web site and is seeking ways to support NCNERR activities, including informational newsletters.

More than 15 reserves in the 26-reserve national system have associated “friends” nonprofit groups, and these groups provide an extremely useful and strong support system. In many cases, these groups are able to raise funds to support activities or purchase equipment that a state agency is unable to fund or authorize. They may also be able to recognize, reward, and support volunteer efforts. A friends group extends the reach of the Reserve’s education, outreach, and public involvement efforts and increases visibility of a program. NOAA encourages the NCNERR to develop ongoing partnerships with appropriate nonprofit support groups.

PROGRAM SUGGESTION: NOAA urges the NCNERR to encourage, support, and collaborate with appropriate nonprofit friends/support groups, both locally and nationally.

D. STEWARDSHIP AND RESOURCE MANAGEMENT

Because of the distance between the NCNERR components, the staff located nearest each component has been responsible for stewardship activities. Traditionally, the Reserve manager coordinated stewardship efforts on Masonboro and Zeke’s Islands, the education coordinator undertook stewardship activities on Rachel Carson, and the northern sites manager managed all aspects of Currituck Banks (although the northern sites manager is the NCNERR’s designated stewardship coordinator). With the relocation of the Reserve manager and research coordinator to Beaufort (Rachel Carson), the Reserve may need to reconsider this approach. [Since the site visit, the Reserve has indicated that the newly created southern sites manager position, which has been filled, will manage Masonboro and Zeke’s Islands, and the education coordinator will continue to manage stewardship activities on Rachel Carson.] As noted in previous sections, NOAA has recommended that the Reserve consider and clarify what activities will occur at each reserve component and which staff members will have responsibilities for those activities.

The goal of stewardship is to maintain each Reserve component as a scientific and educational resource to foster more informed coastal management decisions in the region. Over the past four years, stewardship activities have included visitor monitoring and outreach, threatened species monitoring, invasive species monitoring, enforcement, partnership building,

construction and routine maintenance. Most activities require volunteer assistance, thus adding the additional elements of volunteer recruitment, training and management to the Reserve's stewardship program. Volunteer involvement has been discussed in the "Education and Outreach" section above.

For the past four years, sea turtle nest and colonial nesting bird surveys have been conducted at the Zeke's Island, Masonboro Island, and Rachel Carson components. Signs and restricted areas are posted where necessary. The CTP coordinator also established a horseshoe crab monitoring program at Rachel Carson.

From 2000-2002, studies were conducted on Zeke's, Masonboro and Rachel Carson to assess visitor activities (primitive camping, surfing, sun bathing, fishing, walking) and impacts to the resources. Appropriate signs were developed and posted. Sign and boundary marker replacement occur on a continuing basis at all reserve components.

Feral horse management is a large part of stewardship for the Rachel Carson staff. Horses are monitored, birth control is given, and the staff must bury dead horses, but the state's commitment of manpower and other support to this issue is limited. The Cape Lookout National Seashore is able to offer some staff assistance for the annual birth control darting, although it has decreased over the last several years. [Since the site visit, the evaluation team was informed that one staff member from the National Seashore was able to obligate five days in February, 2005, although weather limited that time to only three days. A member of the National Humane Society then completed the birth control darting in spring 2005.] Horse management is also a concern at Currituck Banks. Fortunately, three other entities also have responsibility for the horses in this area, including the Currituck National Wildlife Refuge. Reserve staff involvement in this area consists of serving on an advisory board for the Corolla horse management plan and monitoring grazing impacts on the habitats.

Two invasive species that have caught the attention of the NCNERR staff are the *Tamarisk sp.* on Rachel Carson and *Phragmites australis* on Currituck Banks. An intern at Rachel Carson initiated monitoring of the *Tamarisk sp.* in 2000. In 2002, methods were chosen and tested to remove this species. Volunteers are working to continue the removal efforts. In 2003 the stewardship coordinator conducted a *P. australis* removal demonstration project on the Outer Banks in partnership with the U.S. Fish and Wildlife Service and funded by a grant from the Albemarle-Pamlico National Estuary Program. This project resulted in a workshop for land managers and in the development of a publication targeting private landowners. Following this work, the *P. australis* stands in Currituck Banks were mapped. Removal strategies are being developed.

Reserve policies are enforced by local authorities at the request of site managers when problems arise. Though some partnerships are confirmed through memoranda of understanding, continuous relationship building is required to ensure ongoing assistance from these agencies.

In many cases, the primary option for enforcement is public outreach. Outreach

programs addressing specific activities (e.g., sign development) have been developed for camping, removal of live sand dollars, hunting, littering, illegal parking, and all-terrain vehicle use. The reserve components allow hunting, fishing, and trapping according to state and local regulations. State wildlife officers and local police agencies enforce these activities. On Currituck Banks, conflicts between boardwalk visitation and hunting required additional limitations to be placed on the hunters. This was done through a permit system with the state wildlife agency.

At Currituck Banks, a 2,100-foot boardwalk was completed in 2001. Application of wood sealer and construction of a parking lot fence took an additional 350 volunteer hours. Staff or volunteers do maintenance of the parking lot and boardwalk weekly. In 2003, a ¾ mile hiking trail was developed. Currently, interpretive signs are being developed. At the time of the site visit, plans were being finalized to place an osprey nest pole at the boardwalk.

ACCOMPLISHMENT: In the face of decreased funding and staffing levels, the Reserve has taken advantage of a variety of partnerships and volunteer efforts to conduct stewardship and resource management activities at the four NCNERR components. Of particular note are projects at Currituck Banks involving invasive species, boardwalk construction and visitation, hiking trail construction, and planned placement of an osprey nest pole.

V. CONCLUSION

Based upon the recent evaluation of the North Carolina National Estuarine Research Reserve, I find that the state of North Carolina is marginally adhering to the programmatic requirements of the National Estuarine Research Reserve System in its operation of the North Carolina NERR.

The North Carolina NERR has made progress in the following areas: (1) Research and Monitoring; (2) Education and Outreach; and (3) Stewardship and Resource Management.

The evaluation team identified the following areas where the North Carolina NERR could be strengthened or improved: (1) Operations and Management; (2) Research and Monitoring; and (3) Education and Outreach.

These evaluation finding contain seven (7) recommendations: four (4) Necessary Actions that are mandatory and three (3) Program Suggestions that should be considered by the North Carolina National Estuarine Research Reserve prior to the next §312 evaluation of the program.

This is a programmatic evaluation of the North Carolina National Estuarine Research Reserve that may have implications regarding the state's financial assistance awards(s). However, it does not make any judgment about or replace any financial audits.

9/6/05

Date

/s/ Eldon Hout

Eldon Hout, Director
Office of Ocean and Coastal
Resource Management

LIST OF PERSONS CONTACTED

U.S. Senators

Honorable Elizabeth H. Dole
Honorable Richard M. Burr

U.S. Representatives

Honorable Walter B. Jones
Honorable David E. Price
Honorable Mike McIntyre

Department of Environment and Natural Resources

William Ross, Secretary
Robin Smith, Assistant Secretary for Planning and Policy
Gloria Putnam, Coastal Nonpoint Source Program Coordinator, Division of Water Quality
Bill Crowell, Albemarle-Pamlico National Estuary Program
John Taggart, State Parks and Recreation Division and former NCNERR Manager

Division of Coastal Management

Charles Jones, Director
Steve Underwood, Assistant Director for Policy and Planning
Mike Lopazanski
Guy Stefanski
Josh Shepherd
Michelle Walker
Jaye Poole

North Carolina National Estuarine Research Reserve

Steve Underwood, Acting Manager
John Fear, Research Coordinator
Doug Coker, Education Coordinator
Michele Droszcz, Stewardship Coordinator and Northern Sites Manager
Whitney Jenkins, Coastal Training Program Coordinator
Lori Davis, Community Outreach Coordinator
Amy Sauls, Coastal Education Specialist
Jacqui Ott, GIS Coordinator
Paula May, Research Biologist and SWMP Technician
John Howkins, Environmental Technician Assistant

Elected Officials

Anne Carter, Mayor of Beaufort and member of Rachel Carson Local Advisory Committee

(Continued)

Federal Agency Representatives

Kendall Smith, Assistant Manager, Currituck National Wildlife Refuge
Bill Birkmeier, Director, U.S. Army Corps of Engineers Field Research Facility
Dr. David Johnson, Director, NOAA NOS Center for Coastal Fisheries and Habitat Research at
Beaufort

Academia

Dr. Michael Orbach, Director, Duke University Marine Lab
Dr. Dan Rittschof, Duke University Marine Lab
Dr. James Merritt, University of North Carolina-Wilmington
Dr. Steve Ross, University of North Carolina-Wilmington and former Reserve Research
Coordinator
Tara Casazza, University of North Carolina-Wilmington and former Reserve staff member

Other Organizations and Representatives

Ann Marie Necaie, former Reserve staff member
Susan Lovelace, former Reserve Education Coordinator
Donna Moffitt, Director, North Carolina Aquarium at Fort Fisher, and former Director, Division
of Coastal Management
Scott Lawrence, President, Carolina Estuarine Reserve Foundation (CERF)
Ginger Webster, member of Currituck Banks Local Advisory Committee
Bill Robinson, Reserve volunteer and member of Currituck Banks Local Advisory Committee
Bruce McCutcheon, Reserve volunteer
Bill Raney, Member of Masonboro/Zeke's Island Local Advisory Committee

PERSONS ATTENDING THE PUBLIC MEETING

Tuesday, December 7, 2004, at 7:00 pm at the Corolla Fire and Rescue Squad Station, Corolla

The meeting was held in conjunction with a meeting of the “Corolla Concerned Citizens,” which had additional agenda items. The list of attendees below does not differentiate between those attending for one purpose or another.

Norris Austin	Mary Riley
Edna Baden	Pat Riley
Jack Burke	Herb Robbins
Marshall Cherry	Bill Robinson
Bob Collins	Marlene Slate
Roger Crafe	Jim Smith
Sue Davis	Chuck Sowers
Elizabeth Dodd	Fred Stumpf
Carol Dudek	Pete Tucker
Lin Grantham	Ginger Webster
Brenda Grantham	Ralph Webster
Gene Olszewski	Earl Wemer

Wednesday, December 8, 2004, at 7:00 pm at C-MAST Building, 3rd Floor Conference Room
303 College Circle, Morehead City

Dennis Chadwick
Robin Chadwick
John Fussell
Mike Bertino
Dr. John Davis

Thursday, December 9, 2004, at 7:00 pm at the Department of Environment and Natural
Resources, Regional Office, Room 200, 127 Cardinal Drive Ext., Wilmington

Donna Moffitt

WRITTEN COMMENTS RECEIVED AND RESPONSES**John Fussell
Morehead City, North Carolina**

Mr. Fussell expressed great concern about the intense visitation pressure at the Rachel Carson Reserve. He indicated that the number of visitors and their dogs are a major threat to ground-nesting waterbirds during the summer months and to some species' roosting sites in the later summer and fall during migration periods. He believes there is a great need for a site manager for the Rachel Carson Reserve because there is no enforcement at the site – people commonly ignore signs posting the nesting areas, walk through nesting areas, and even let their dogs run at large through nesting areas.

NOAA's Response: NOAA appreciates Mr. Fussell's comments. During the site visit, the evaluation team discussed the enforcement problems at all of the NERR components, where problems are exacerbated because existing Reserve staff are spread so thin. NOAA has made recommendations to the NCNERR dealing with staffing issues and the support provided by the state to the Reserve staff. NOAA also believes that the NCNERR should continue to involve volunteers and citizens in resource management issues and encourages the development of partnerships with other agencies and entities to address common concerns.

**Cris Crissman
Distance Learning Consultant
Public Schools of North Carolina**

Dr. Crissman noted that the Rachel Carson component has made a significant contribution to distance learning efforts with EstuaryLive and that the state has now modeled other distance learning projects after it. She also expressed appreciation for the training sessions in grantwriting. Dr. Crissman praised the Reserve staff and the education outreach activities.

NOAA's Response: NOAA appreciates and agrees with Dr. Crissman's comments.

**Donna Moffitt, Director
North Carolina Aquarium at Fort Fisher**

Ms. Moffitt expressed appreciation for the nearby Zeke's Island NERR component and indicated that the Aquarium is able to use the site for field trips and teaching opportunities. The Reserve's and aquarium's educational missions mesh well and the programs work closely. Ms.

Moffitt also noted that there are issues involving trash and the poor conditions of the breakwater, road and parking areas and boat ramp and associated bulkhead that public agency landowners in the area are struggling to deal with in light of limited resources.

NOAA's Response: NOAA appreciates Ms. Moffitt's comments. We hope that the Reserve and Aquarium will be able to continue to support each other and work closely together in both their education missions and in addressing maintenance issues in the Fort Fisher/Zeke's Island area.

Jackie Harris
North Carolina Aquarium at Fort Fisher

Ms. Harris provided a list of activities, actions, and issues that she is aware of that are occurring now or she would like to see occur or be addressed at the Masonboro and Zeke's Island NCNERR sites. She would also like to see management personnel at the southeastern sites coordinate the efforts of numerous governmental and commercial agencies and entities.

NOAA's Response:
NOAA appreciates Ms. Harris' comments and will share them with Reserve staff.

STATE RESPONSE TO PREVIOUS (1999) EVALUATION FINDINGS

PROGRAM SUGGESTION: The Reserve has generated a priority list of staffing recommendations from its Strategic Plan. These are (not listed in any priority): Northern Sites Manager, Research Assistant, GIS Specialist, Education Assistant, Education Data Manager. DCM should take these NCNERR planning priorities to the next step by making them division and departmental funding priorities. A minimum of three positions should be moved to state funding.

Response: Over the past 4 years, beginning the summer of 2001, the State budget began a downward spiral that caused the Department to reduce state appropriations across all its divisions, to ensure it was meeting the state constitutional requirement of maintaining a balanced budget. In order to keep from laying individuals off, we had to fund shift from state funding to our 2 federal funding sources (NOAA 306/309 and 315 federal funding sources). Concerning the permanent state funding reductions, here is how much money DCM had to give back to the department listed by state fiscal year:

01-02 A 3% reduction total of \$66,829 (\$0 from state Coastal Reserve funds)

02-03 A 13% reduction total of \$242,844 (\$95,433 from state Coastal Reserve funds)

The research and education positions were fund shifted to the 315 Grant on 7/1/02

03-04 A 13% reduction total of \$228,385 (\$42,326 from state Coastal Reserve funds)

One half of reserve manager position was fund shifted to the 315 Grant on 7/1/03

04-05 A 3% reduction total \$51,127 (\$6,550 from state Coastal Reserve funds)

Total Loss of State Funding for DCM: \$589,185 or approximately 30%

This dramatic decrease in state appropriations made it impossible to even begin opening up a dialogue with the Department concerning additional positions to be added to the State budget.

PROGRAM SUGGESTION: A Plan is needed to determine what Reserve facilities will be needed to accommodate present and future needs for staff/activities. Planning is especially encouraged for staff offices in Wilmington, Beaufort and the Northern Outer Banks that will give the program room for growth and proper identity. Also, it is recommended that the State unfreeze funds for construction of the boardwalk at Currituck Banks

Response: Regarding the Currituck Banks NERR, a 2,100-ft. boardwalk was completed in 2001. In 2003, a ¾ mile hiking trail was also constructed. Currently, interpretive signs are being developed.

Over the past 6 months, Michele Droszcz was approached by the Mayor and the Town Manager of Kitty Hawk for discussions on our long-term space plans for our Kitty Hawk office. Both of them acknowledged our strong partnership, and they wanted to ensure a continued long-term relationship. We discussed a possibility of the Town donating some land for construction of a visitor center and new NERR office space. We estimated an office size of approximately 1500 sq ft, costing about \$180,000-\$200,000 (@ \$120.00 sq ft).

We now have 2 new facilities that are close to actually beginning construction: 1) the Beaufort NCNERR headquarters that will house our Education staff, Coastal Reserve Manager, Research Coordinator, and GIS Specialist; and 2) the new Research Facility located at UNCW's –Center for Marine Science.

1) Beaufort NCNERR Headquarters

The concept evolved during a 2000 Beaufort visit by acting NOAA administrator Scott Gudes. He saw the unique opportunity for having an NOS laboratory partner with an Estuarine Reserve Program in the same facility and strongly endorsed it.

Purpose: Construct a joint NOS/NERR facility to contain library, auditorium, conference room(s), laboratory and offices.

Need: New facility to provide office/lab space for NOS and NERR staffs; eliminate co-location in incompatible areas; enhanced conference, training and meeting facilities; modernized networking and computer infrastructure.

The NOS Lab (NOAA Center for Coastal Fisheries and Habitat Research) received an FY02 allocation from the NOAA Construction Fund for \$5,000,000 for repairs and for construction of the joint facility. Three million of that was subsequently allocated for the new building. The same year we received \$1,000,000 from the NERRS construction fund to give a total of \$4 million for the proposed facility.

In April 2002 NOAA-contracted architects developed a project cost estimate of \$4.9 million for the facility (“NOS/NERR Laboratory and Administrative Building”) that would include everything such as docks, furniture, etc. However, the basic facility could be built for the \$4 million. We have requested (from our congressional delegation – esp. Price and Jones) a special appropriation for the remaining \$900,000.

Thus far, we have gone through the planning, DP-2 (decision point 2; approved on Feb. 3, 2003) and scoping/analysis steps. A project planning report, conceptual design submittal, value engineering report and preliminary environmental documentation have been prepared.

DP-3 (decision point 3) overall program approval has been granted, followed by final design stage (December 2004), DP-4 approval after which construction can begin. 95 %

design approval will be done on December 14, 2004, with the design firm in Lafayette, La.

The potential partnership with the NOS lab is an obvious benefit. Also, Duke Marine Lab (Mike Orbach) is very supportive because the new building would provide additional meeting space and increase interactions among the institutions/programs on Pivers Island plus the local marine science community (UNC-IMS, NC STATE -SEAMAST).

2) Research/Stewardship Office at UNCW

In 1998, the NCNERR was awarded a construction grant of \$225,000 to build an updated research facility. This grant has been extended twice, and the scope of work has changed several times. The end date for this grant is December 31, 2004. Over the past 6 years, numerous actions have been agreed upon and then modified as the construction of a new research facility plan has taken shape.

The original research building was to be moved into another location on campus (300 yds from original site) and an existing residence was to be incorporated into this facility. UNCW was also in an expansion phase of the existing Center for Marine Science. In order to accommodate this expansion, we were going to have to be moved from the present location by June 2004. Beginning January 2004, DCM was approached by UNCW and asked to incorporate their construction money into this new CMS expansion, therefore negating the need to move existing buildings.

UNCW called back to DCM in March to say that they were going to delay plans on their new CMS expansion until Spring 2005. Apparently, the cost of steel had risen to a level that made the new expansion cost prohibitive for this fiscal year. We then met with UNCW management and laid out another plan for the construction of our Research facility to begin and be totally completed by December 2004. The new facility was to go into the original location as described in the grant extension. The final design drawing was approved and went out for construction bids. New construction was to begin by no later than September. The bids came back 30% above what we had budgeted for our new building.

We were then re-approached by UNCW to be part of their new expansion for Spring 2005. UNCW had a slow down in the development of the building process awaiting additional information and funds. With the funds available from the research construction project, UNCW was now able to provide space for NCNERR in the new building by shifting other functions to other locations. UNCW was able to make available approximately 1450sq. ft. of lab and office space for NCNERR staff. DCM then requested to NOAA to consider changing the scope of work for the research construction project to apply these funds toward design and development fees. DCM was granted this change in scope by the NOAA Grants Management Division.

The integration of the NCNERR staff into the main University building was preferable for the long-term operation of the NCNERR program in the southern part of the state. The

NCNERR staff will be more easily accessible to visitors and other University personnel and will be able to more clearly develop and maintain an identity for the NCNERR and particularly the southern sites (Masonboro Island, Zekes Island etc.). Other facilities available in the main building will be more readily accessible. These include; conference rooms, common use labs such as sample prep and storage, general equipment, break rooms and etc.

The University will provide space for the NCNERR staff to operate during the time of construction. Since their current space will be removed, they will be relocated to other suitable space for the duration of the building project. The University entered into an agreement with the NC Division of Coastal Management in 1989 to cooperate with the establishment of the NC National Estuarine Research Reserve Program and house it on the University campus. The relationship has been a very positive one and the NCNERR has steadily grown over the past 15 years. The NCNERR education, research, and management activities have made significant contributions to the state and national program. The original intent was to integrate the NCNERR staff into the main University facilities to achieve the highest level of activity and efficiency possible. Unfortunately funds and the opportunity to achieve this goal had not been available at the same time. At this time, both of these conditions are present and will form a cornerstone to furthering our ability to do research and stewardship in the southern part of our state.

LIST OF ACCOMPLISHMENTS AND RECOMMENDATIONS

ACCOMPLISHMENTS

Research and Monitoring

- **System-wide Monitoring Program:** The Reserve's System-wide Monitoring Program has submitted high quality data on time during the period covered by this evaluation despite general disruptions to the research program.
- **Geographic Information System:** The Reserve has a strong geographic information system component that is effectively and routinely integrated into research and education efforts.

Education and Outreach

- **Education and Outreach Programs:** The Reserve has been able to increase its educational and outreach activities through a continued investment in the use of volunteers, partners, and varied media mechanisms. In particular, the developing partnerships with the Outer Banks Center for Wildlife Education and the ongoing work with the DCM public information officer are recognized as beneficial to the educational mission of the Reserve.
- **Coastal Training Program:** The Reserve's Coastal Training Program is fully operational and is a robust element of the NCNERR. Of particular note is the development of a suite of materials on the topic of microbial pollution for the state's Coastal Nonpoint Source Program as reference materials for coastal decision makers.

Stewardship and Resource Management

- In the face of decreased funding and staffing levels, the Reserve has taken advantage of a variety of partnerships and volunteer efforts to conduct stewardship and resource management activities at the four NCNERR components. Of particular note are projects at Currituck Banks involving invasive species, boardwalk construction and visitation, hiking trail construction, and planned placement of an osprey nest pole.

RECOMMENDATIONS

Operations and Management

- **NECESSARY ACTION (Coordination, Communication, and Planning):** The NCNERR must submit a complete draft management plan to OCRM for review and approval by March 31, 2006. In addition to the systemwide requirements for content of the management plan, and the staffing, facilities, and safety plans discussed elsewhere in these findings, the NCNERR management plan must incorporate or reflect the following:
 - a) state financial support for the Reserve;
 - b) definition of priority program goals, both Reserve-wide and at each of the four site components; and
 - c) planning to develop collaborations that push forward reserve initiatives, including the development of new, or revisions to existing, memoranda of understanding or agreement.
- **NECESSARY ACTION (Staffing; Facilities, Facilities Plan, and Infrastructure):** The Reserve must develop separate outlines of a staffing plan, a facilities plan, and a safety plan and submit these outlines to OCRM by December 31, 2005, for review and approval. Complete staffing, facilities, and safety plans must be incorporated into the Reserve's management plan and be submitted to OCRM as part of the complete draft management plan as required in the Necessary Action addressing the management plan.
- **NECESSARY ACTION (State Financial and Administrative Support):** The DCM and the Reserve must address the appropriate use of federal funds and develop options for state support for the NCNERR, including match identification. Written documentation of this effort must be submitted to NOAA in April 2006 for review and approval as part of the draft cooperative agreement application due at that time.

Research and Monitoring

- **NECESSARY ACTION (Research Activities):** The Reserve must complete its site profile. An outline of the site profile must be submitted to NOAA within 120 days of the date of these findings for review and approval. A complete draft of the site profile must be submitted to NOAA by March 31, 2006, for review and approval.
- **PROGRAM SUGGESTION (Research Activities):** The DCM and the Reserve are strongly encouraged to seek out and take advantage of the many opportunities for partnerships and collaborations that exist at all the site components, particularly when those opportunities could enhance or strengthen Reserve activities.

Education and Outreach

- **PROGRAM SUGGESTION (Public Involvement and Volunteer Programs):** NOAA encourages the NCNERR to reconsider the membership, roles, and meeting schedules of

the local advisory committees (LACs) as it revises the Reserve's management plan to seek ways in which the LACs might better serve as mechanisms for citizen input and involvement.

- **PROGRAM SUGGESTION (Public Involvement and Volunteer Programs):** NOAA urges the NCNERR to encourage, support, and collaborate with appropriate nonprofit friends/support groups, both locally and nationally.